

## REMARKS

Claims 1-3 are pending.

In the Office action, claims 1 and 2 were rejected under 35 U.S.C. 112, par. 2, because the phrase “calculating a calculated value” was unclear. The claims have been amended so that phrase reads “calculating a value.”

In view of the amendment, applicant respectfully requests withdrawal of the rejections under section 112, par. 2.

Claims 1-3 were rejected as anticipated by U.S. Patent Nos. 6,563,846 (Kuo et al.) and 6,301,280 (Broutin et al.). As discussed below, applicant respectfully disagrees.

The subject matter of the claims includes at least two different calculations relating to temperature: (a) calculating an “approximate temperature” of the laser based on the set values of wavelength and output level; and (b) calculating a “set temperature” to control the temperature of the laser. Neither of the references, alone or in combination, discloses or suggests such a technique.

The Kuo et al. patent discloses a laser module 10 that includes a temperature control block 13 to monitor and control the temperature of the laser diode. A control unit 16 receives signals from the temperature control block 13 as well as a current control block 14. The control unit 16 sends control signals to the blocks 13, 14 to control the temperature and forward bias current of the laser diode. In particular, the control unit 16 allows the output power and wavelength of the laser to be targeted by setting an operating temperature and bias current based on a closed mathematical form (equation (10)).

According to the Kuo et al. patent, equations (9) and (10) are stored together with empirically determined coefficients. Solving equation (10) provides the necessary temperature change ( $\Delta T$ ) for a desired output power change ( $P_1 - P_0$ ). Solving equation (9) provides the change in driving current ( $\Delta I$ ) for a desired frequency change ( $\Delta v$ ). *See*, col. 5, lines 21-28. The

desired output power and wavelength effectively can be set by applying the calculated temperature change ( $\Delta T$ ) and the calculate change in driving current ( $\Delta I$ ) to the laser diode.

At most, solving equation (10) for the temperature change ( $\Delta T$ ) might correspond to the second temperature calculation in the claims regarding calculating a “set temperature” to control the temperature of the laser. The technique disclosed in the Kuo et al. patent, however, does not involve the separate calculation regarding “an approximate temperature” as recited in the pending claims.

The Broutin et al. '280 patent discloses a laser such as a DFB laser 100. A temperature control device, such as a thermoelectric cooler (TEC) 120, is thermally coupled to the laser. A temperature detector 121, such as a thermistor, provides temperature information that may be used to control the TEC.

The apparatus of the Broutin et al. patent also includes a transformer having primary and secondary windings 212, 216 that are electrically coupled to detectors PD1, PD2 to receive signals representing, respectively, the amplitude of the laser light and filtered light. The controller (*i.e.*, TEC 120) is coupled to the secondary winding 216 and controls the wavelength of the laser based on a voltage VD of the secondary winding. In particular, the controller 120 adjusts the temperature of the laser 100 based on the voltage VD.

The only temperature calculation in the Broutin et al. patent occurs when the controller determines the desired temperature of the laser based on the voltage VD. Any temperature obtained by detector 121 is not a “calculation” of an estimated temperature. As already pointed out in our Appeal Brief in connection with the Broutin et al. '737 patent, the function of a temperature detector such as a thermistor is to monitor an actual temperature, not to calculate a temperature. Therefore, at most, the Broutin et al. '280 patent may disclose calculating a set temperature to control the temperature of the laser. Like the Kuo et al. patent, however, the Broutin et al. '280 patent does *not* involve or suggest a separate calculation regarding “an approximate temperature” as recited in the pending claims.

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Therefore, even if there were some motivation somehow to combine the Kuo et al. and Broutin et al. patents, such a combination still would not result in, or suggest, the claimed subject matter.

For the foregoing reasons, applicant respectfully requests reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. 103.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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